



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,186	09/08/2003	Woo-Shik Kim	030681-570	8408

21839 7590 07/27/2007  
BUCHANAN, INGERSOLL & ROONEY PC  
POST OFFICE BOX 1404  
ALEXANDRIA, VA 22313-1404

EXAMINER
----------

WONG, ALLEN C

ART UNIT	PAPER NUMBER
----------	--------------

2621

MAIL DATE	DELIVERY MODE
-----------	---------------

07/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/656,186

Applicant(s)

KIM ET AL.

Examiner

Allen Wong

Art Unit

2621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 April 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments filed 4/25/07 have been fully read and considered but they are not persuasive.

The 35 U.S.C.101 rejection is withdrawn because applicant has amended claims 51-52 to meet with the current 35 U.S.C.101 statutory requirements.

Regarding lines 1-4 and 9-11 on page 23 of applicant's remarks, applicant asserts that Ngai does not disclose redundant image decoding, where redundantly-encoded predetermined regions of at least two slices of the plurality of slices constructed by the slice construction unit are overlapped on each other, as recited in claim 21. The examiner respectfully disagrees. Ngai's element 20 of figure 1 is the synchronizer that the synchronizes each of the slices of the frame image data into a whole frame, ready for display at the monitor, and that during the construction of the slices for formation of the whole frame image, each of the slices that have corresponding overlap will be properly assembled for forming the whole frame image and including the predetermined regions of at least two slices of the plurality of slices constructed by the slice construction unit, as disclosed in column 4, lines 48-53. Thus, Ngai discloses redundant image decoding, where redundantly-encoded predetermined regions of at least two slices of the plurality of slices constructed by the slice construction unit are overlapped on each other. Thus, Ngai reasonably meets the broad limitations of claim 21.

Dependent claims 22-25 are rejected for at least similar reasons. Claim 46 is rejected for at least similar reasons as claim 21. Dependent claims 47-50 and 52 are rejected for similar reasons as claim 46.

Regarding lines 5-9 on page 24 of applicant contends that there is no prima facie basis for rejection of claims 1-20, 26-45 and 51. The examiner respectfully disagrees. The examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it would have been obvious to one of ordinary skill in the art to combine the teachings of Borgwardt and Ngai, as a whole, for producing an accurate, efficient, robust image decoder for producing high quality video images for viewing, as suggested in Ngai's column 3, lines 13-22.

Regarding lines 9-14 on page 24, lines 2-5 and 8-11 on page 25 of applicant's remarks, applicant states that Borgwardt does not disclose "a slice modeling unit which determines the structures of slices to be used in encoding an image and predetermined regions to be redundantly encoded so that image data of each predetermined region of the image to be redundantly encoded is contained in a plurality of slices". The examiner respectfully disagrees. In column 4, lines 12-23, Borgwardt discloses that the slices are modeled and sent to client processors to determine the structure of slices to be used in encoding, in that the determination process of the structures of slices are dependent on

a variety of factors like target rates and quantization scale factors that are applied in an efficient rate control encoding scheme that redundantly encodes image data, wherein image frame data are subdivided into sections or regions of slices, or regions of macroblocks, or into an subdivision of the image as one needs to accomplish the task of encoding image data dependent on the size of each of the predetermined regions. Thus, Borgwardt discloses "a slice modeling unit which determines the structures of slices to be used in encoding an image and predetermined regions to be redundantly encoded so that image data of each predetermined region of the image to be redundantly encoded is contained in a plurality of slices".

One cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Ngai is a slice decoder, but a decoder does not work if there is a corresponding encoder to go with for encoding the image data so that the decoder can decode the image data. Therefore, it is logical and reasonable to combine the teachings of Borgwardt and Ngai since both references pertain to the same analogous MPEG image encoding/decoding environment.

Dependent claims 2-20 are rejected for at least similar reasons as claim 1. Claim 26 is rejected for similar reasons as claim 1. Dependent claims 27-45 and 51 are rejected for at least similar reasons as claim 26.

Thus, the rejection is maintained.

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 21-25, 46-50 and 52 are rejected under 35 U.S.C. 102(b) as being anticipated by Ngai (6,263,023).

Regarding claims 21, 46 and 52, Ngai discloses a method and an apparatus for redundant image decoding, the apparatus comprising:

a picture header decoding unit which decodes picture header information containing the structures, positions, and sizes of slices in a bitstream where image data are encoded (col.5, ln.27-43; Ngai discloses the use of a slice address allocator where encoded slice data parameter information is kept and coordinated, used for decoding image information, where slice addresses, high level symbol data such as size, position, structures of picture information are utilized and tracked; thus, picture headers decoding unit is utilized);

a slice construction unit which determines the structures and positions of a plurality of slices to be decoded according to the picture header information (fig.1, elements 18 and 20 are interactively connected and used together for determining structures and positions of plural slices);

a slice decoding unit which decodes an image in units of slices according to the picture header information (fig.1, element 16); and

an image construction unit which disposes the decoded slice image according to the structure and position of the slices determined by the slice construction unit and restores and outputs the image (col.4, ln.48-51; fig.1, element 38 is the output for display of images as constructed by image construction unit 20);

wherein redundantly-encoded predetermined regions of at least two slices of the plurality of slices constructed by the slice construction unit are overlapped on each other (fig.1, element 20 utilizes the synchronization of image data that leads to the overlapped slices that include the predetermined regions of at least two slices of the plurality of slices constructed by the slice construction unit).

Regarding claims 22-25 and 47-50, Ngai discloses wherein the slice decoding unit comprises:

an entropy-decoding portion which entropy-decodes an inputted bitstream in units of slices according to the position and size information of the slices (fig.2, element 44); an inverse-transform quantization portion which performs inverse-quantization of entropy-decoded image data, performs inverse-transform of the inversely-quantized image data into a temporal region, and generates temporal/spatial predictively-encoded image data (fig.2, element 46); and an image restoration portion which restores an image by compensating the temporal/spatial predictively-encoded image data (fig.2, element 52).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2621

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-20, 26-45 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Borgwardt (5,949,490) in view of Ngai (6,263,023).

Regarding claims 1, 26 and 51, Borgwardt discloses a method and an apparatus for redundant image encoding, the apparatus comprising:

a slice modeling unit which determines the structures of slices to be used in encoding an image and predetermined regions to be redundantly encoded so that image data of each predetermined region of the image to be redundantly encoded is contained in a plurality of slices (col.4, ln.12-23, Borgwardt discloses that the slices are modeled and sent to client processors to determine the structure of slices to be used in encoding);

a slice allocation unit which allocates image data of each region of an image to the plurality of slices (fig.6, note that Borgwardt discloses the plural slice of each region of the frame is allocated based on the complexity and to determine the proper encoding rate); and

a slice encoding unit which encodes the image in units of slices according to the picture header information (col.4, ln.19-29).

Borgwardt does not specifically disclose a picture header encoding unit which encodes information required to decode the plurality of encoded slices and generates picture information. However, Ngai teaches the use of a high definition television decoder that decodes the plurality of slices and generating picture information (col.5,



In.27-43; Ngai discloses the use of a slice address allocator where encoded slice data parameter information is kept and coordinated, used for decoding image information, and see fig.1, note multiple slice decoders 16, thus, picture headers encoding unit is utilized). The use of a picture header encoding unit is well known in the art of MPEG encoding since a picture is defined as a plurality of slices, where headers are typically used to define picture information data for informing the decoder or the reception terminal as to how to properly decode image data for viewing. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Borgwardt and Ngai, as a whole, for producing an accurate, efficient, robust image decoder for producing high quality video images for viewing (Ngai col.3, In.13-22).

Note claims 2-14 and 27-39 have similar corresponding elements.

Regarding claims 15 and 40, Borgwardt discloses wherein the slice encoding unit comprises: a temporal/spatial predictive encoding portion which performs temporal/spatial predictive encoding in units of slices of the image (fig.1, note use of MPEG encoder and the recursive rate control scheme for encoding interframe images like P and B frames, and note that intraframes (I frames) are encoded); a transform quantization portion which transforms the temporal/spatial predictively-encoded data into a frequency region and quantizes the data (fig.1, note "DCT" and "Q" or quantization); and an entropy-encoding portion which entropy-encodes the quantized data (fig.1, note "VLE").

Borgwardt does not specifically disclose a slice header encoding portion which generates a slice header containing information used to encode a macroblock in the

slice. However, Ngai teaches the use of a high definition television decoder that decodes the plurality of slices and generating picture information (col.5, ln.27-43; Ngai discloses the use of a slice address allocator where encoded slice data parameter information is kept and coordinated, used for decoding image information, and see fig.1, note multiple slice decoders 16, thus, picture headers encoding unit is utilized). The use of a picture header encoding unit is well known in the art of MPEG encoding since a picture is defined as a plurality of slices, where headers are typically used to define picture information data for informing the decoder or the reception terminal as to how to properly decode image data for viewing. Therefore, it would have been obvious to one of ordinary skill in the art to combine the teachings of Borgwardt and Ngai, as a whole, for producing an accurate, efficient, robust image decoder for producing high quality video images for viewing (Ngai col.3, ln.13-22).

Note claims 16-20 and 41-45 have similar corresponding elements.

### ***Conclusion***

2. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of


the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

**Contact Information**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen Wong whose telephone number is (571) 272-7341. The examiner can normally be reached on Mondays to Thursdays from 8am-6pm Flextime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Miller can be reached on (571) 272-7353. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Allen Wong  
Primary Examiner  
Art Unit 2621

AW

7/19/02